

REMARKS/ARGUMENTS

The claims are 2-12. Claim 1 has been canceled in favor of new claim 12 to better define the invention. Accordingly, claims 2-7 and 10 which previously depended on claim 1 have been amended to depend on new claim 12. These claims and claim 8 have also been amended to improve their form. In addition, claim 11 has been amended to better define the invention. The specification has been amended to designate items 22 and 23 shown in FIG. 3 and to include material previously incorporated by reference. Support may be found, *inter alia*, in the disclosure at page 5, the original claims, and the drawings. Reconsideration is expressly requested.

The drawings were objected to as failing to comply with 37 C.F.R. 1.84(p) (5) as not showing items 22 and 23 of FIG. 3. The disclosure was also objected to as failing to provide antecedent basis for the "ring groove" of claim 6 and the "lid" of claim 8. In response, Applicants have amended the specification to provide such antecedent basis by indicating that item 22 designates a ring groove and that item 23 designates a

lid. These features are discussed at page 5 of the disclosure. It is respectfully submitted that the foregoing amendments overcome the Examiner's objection to drawings under 37 C.F.R. 1.84(p) (5) and to the disclosure as lacking antecedent basis for the "ring groove" of claim 6 and the "lid" of claim 8, and Applicants respectfully request that the objections on these bases be withdrawn.

The Examiner required that the disclosure be amended to include the material incorporated by reference in the last sentence on page 15 of the specification with respect to DE 102 09 933. In response, Applicants have amended the specification to provide the incorporated by reference material which is taken from paragraphs [0054] to [0061] of published *United States Patent Application Publication No. 2008/0254903* which claims priority on DE 102 09 933. Based on information provided by the Applicants, Applicants' undersigned Attorney hereby states pursuant to 37 C.F.R. 1.57(f) that the material being inserted into the specification by amendment herein is the

material previously incorporated by reference and that the amendment contains no new matter.

Claim 1 was objected to as failing to comply with 37 C.F.R. 1.75(i) because the plurality of elements were not separated by line indentation, and claims 1-8 and 10 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite because claim 1 uses the phrase "such as". In response, Applicants have, *inter alia*, canceled claim 1 in favor of new claim 12 and amended claims 2-8 and 10 to improve their form. It is respectfully submitted that all currently pending claims fully comply with 35 U.S.C. 112, second paragraph, and that the Examiner's objections on the basis of line indentation have been obviated in view of new claim 12 which sets forth the elements of the claim separated by line indentation.

Claims 1-3, 5, 7-8 and 11 were rejected under 35 U.S.C. 102(b) as being anticipated by *Welschof U.S. Patent No. 6,171,196*. Claims 4, 6, and 10 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Welschof* in view of *Jacob U.S. Patent No. 5,585,607*.

Patent No. 6,241,615. Claim 9 was rejected under 35 U.S.C. 103(a) as being unpatentable over Jacob in view of Krude et al. U.S. Patent No. 5,542,885.

This rejection is respectfully traversed.

As set forth in new claim 12, Applicants' invention provides a drive joint for permitting a rotationally and axially fixed connection between a first and a second shaft sub-section of a drive shaft. The connection allows a limited angular displacement. As recited in new claim 12, the drive joint includes an inner hub as an inner joint part, an outer hub as an outer joint part, and a torque transfer mechanism between the inner hub and the outer hub as additional joint parts. When a certain axial force in the direction of one shaft sub-section towards the other shaft sub-section is exceeded, the joint parts disengage.

Welschof describes a constant velocity joint for accomodating axial displacements in a propeller shaft of a motor vehicle (see abstract of *Welschof*). As further can be taken from the figures of *Welschof*, the inner hub and the outer hub of *Welschof* each have grooves for guiding the balls which run in a plane parallel to the longitudinal axis of the joint. Thus, the balls are free to rotate axially in these grooves, allowing an axial displacement of the inner hub with respect to the outer hub. Such joints are usually referred to as plunging joints. See column 1, lines 62 to 65 of *Welschof*.

In contrast, Applicants' invention as recited in new claim 12 specifies that the drive joint permits an axially fixed connection between two shaft sub-sections of a drive shaft. Thus, the drive joint according to new claim 12 is defined as a so-called "fixed joint." The last group of features of new claim 12 underlines this feature in defining that the joint parts disengage when a certain axial force is exceeded, which implies that the joint part have to be engaged, i.e. they have to be fixed with respect to each other in the usual state of the joint.

In other words, the *Welschof* joint allows an axial displacement of the joint parts even at very low axial forces. Thus, the joint parts cannot disengage.

None of the other references cited by the Examiner discusses the possibility of the disengaging two parts of the joint if an axial load exceeds a predetermined value as recited in new claim 12. Accordingly, it is respectfully submitted that new claim 12, together with claims 2-8 and 10 which depend directly or indirectly thereon, are patentable over the cited references.

As set forth in Applicants' claim 9, Applicants' invention provides a drive joint that has a drive-side end and a power-take-off-side end. The drive joint includes an inner hub, an outer hub, a ring-shaped cage, first introduction contours, and second introduction contours. The first introduction contours are provided in the inner surface of the outer hub and make a transition into first cage centering surfaces that run at an incline in the direction of the cage axis. The second introduction contours are provided in the inner surface of the

outer hub and make a transition into second cage centering surfaces that run at an incline in the direction of the cage axis. Centering of the cage takes place exclusively in the outer hub, and centering of the inner hub relative to the outer hub takes place exclusively by way of the balls that are guided in the ring-shaped cage.

Although the Examiner has taken the position that claim 9 is unpatentable over the combination of *Jacob* in view of *Krude et al.*, it is respectfully submitted that the Examiner's position is unfounded. As an initial matter, it is respectfully submitted that the Examiner's statement with respect to the ring-shaped cage on page 8 of the Office Action is incorrect. As can be taken from FIGS. 1, 3, 6, 7 and 8, the cage disclosed in *Jacob* does not have a spherical outer surface. Moreover, the outer surface of the cage of *Jacob* has a complicated structure including outer lugs 29 and a cylindrical outer face portion 27. This highly complicated outer surface of the cage is necessary to allow mounting of the cage in *Jacob*.

In addition, as the Examiner has recognized at page 9 of the Office Action, *Jacob* fails to disclose or suggest the limitations of the introduction contours provided in the inner surface of the outer hub and the cage centering surfaces as recited in Applicants' claim 9. Further, *Jacob* fails to disclose or suggest centering of the inner hub relative to the outer hub exclusively by the way of the balls. Although the Examiner has taken the position that *Krude et al.* teaches this feature, it is respectfully submitted that the Examiner is incorrect. FIGS. 2 and 2a of *Krude et al.* referred to by the Examiner fail to show any gap between the inner surface of the cage and the outer surface of the inner hub or between the outer surface of the cage and the inner surface of the outer hub. Thus, it is respectfully submitted that *Krude et al.* neither explicitly nor implicitly discloses centering the inner hub relative to the outer hub exclusively by way of the balls.

In addition, it is respectfully submitted that the type of the joint known from *Krude et al.* clearly differs from the joint described in *Jacob*. Thus, it would not have been obvious to one

of ordinary skill in the art to transfer a single feature of one joint to a joint of a totally different construction which would be impossible without amending the whole design of a joint.

Moreover, it is respectfully submitted that a person skilled in the art would not have considered *Krude et al.* as the joint described in *Krude et al.* clearly shows some drawbacks. One aspect of such drawbacks is that it seems to be impossible to mount the cage on the inner hub. Further, the wedges 9a which are used to fix the cage in the outer hub of *Krude et al.* are very difficult to mount and create the risk of misalignment. Further, a high risk exists that the whole outer hub will plastically deform when welding the wedges in the outer hub in the *Krude et al.* arrangement. Thus, it is respectfully submitted that one of ordinary skill would not have considered *Krude et al.* for improving the joint shown in *Jacob*. Hence, it is respectfully submitted that claim 9 is patentable over *Jacob* and *Krude et al.* whether considered alone or in combination.

As set forth in claim 11 as amended, Applicants' invention provides a drive joint for a motor vehicle, which can be connected with a first shaft sub-section and a second shaft sub-section, whereby the drive joint has an outer joint part and an inner joint part disposed axially within the former, in which ball raceways are formed on the inside of the outer joint part and on the outside of the inner joint part, and in which balls are disposed in the ball raceways and spaced apart from one another by means of a ball cage.

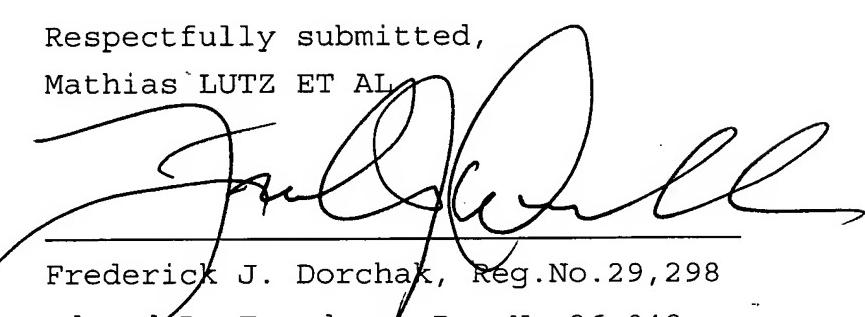
As recited in claim 11 as amended, the joint is designed such that when a certain axial force in the direction of one shaft sub-section towards the other shaft sub-section is exceeded, the joint parts disengage. Ridges that point radially inward are formed between the ball raceways of the outer joint part, which are shaped and dimensioned in such a manner that the ball cage remains geometrically and mechanically intact, to a great extent, after disengagement of the joint parts, if an axial force that leads to the inner joint part and the outer joint part being pushed into one another is exceeded.

It is respectfully submitted that the feature of the joint parts disengaging upon a certain axial load implies that the joint is a fixed joint and that the added features to claim 11 as amended fully differentiate the subject matter of that claim from *Welschof* which discloses a plunging joint for the reasons set forth previously. Accordingly, it is respectfully submitted that claim 11 as amended is patentable over the cited references as well.

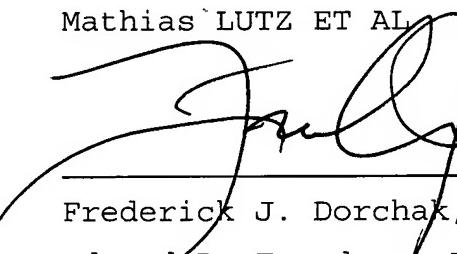
In summary, claims 2-8 and 10-11 have been amended, claim 1 has been canceled, and new claim 12 has been added. The specification has also been amended. In view of the foregoing it is respectfully requested that the claims be allowed and that this application be passed to issue.

Respectfully submitted,

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